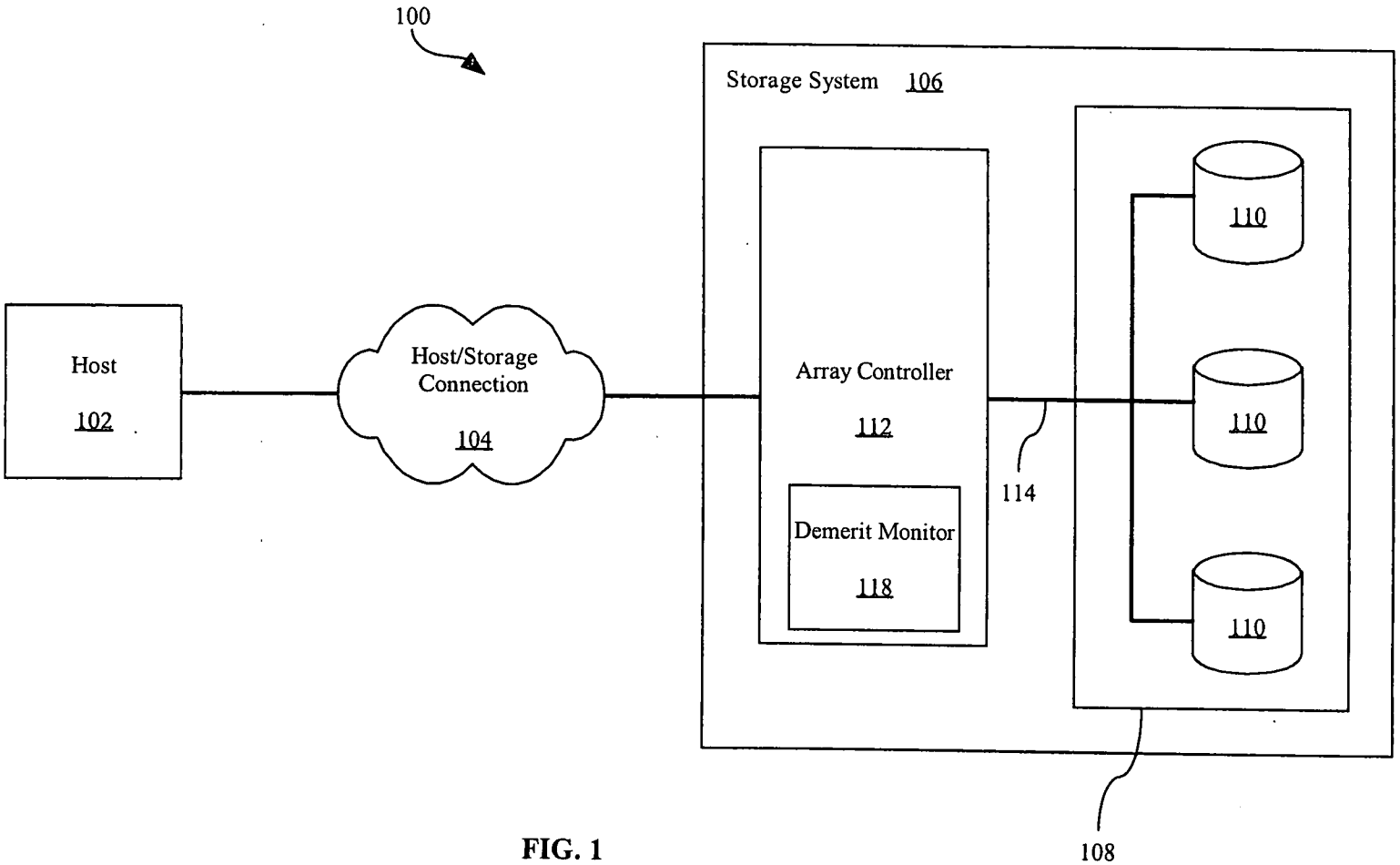
100
Storage System 106
Host
102
Host/Storage
Connection
104
Array Controller
112
Demerit Monitor
118
114
110
110
110
108

FIG. 1

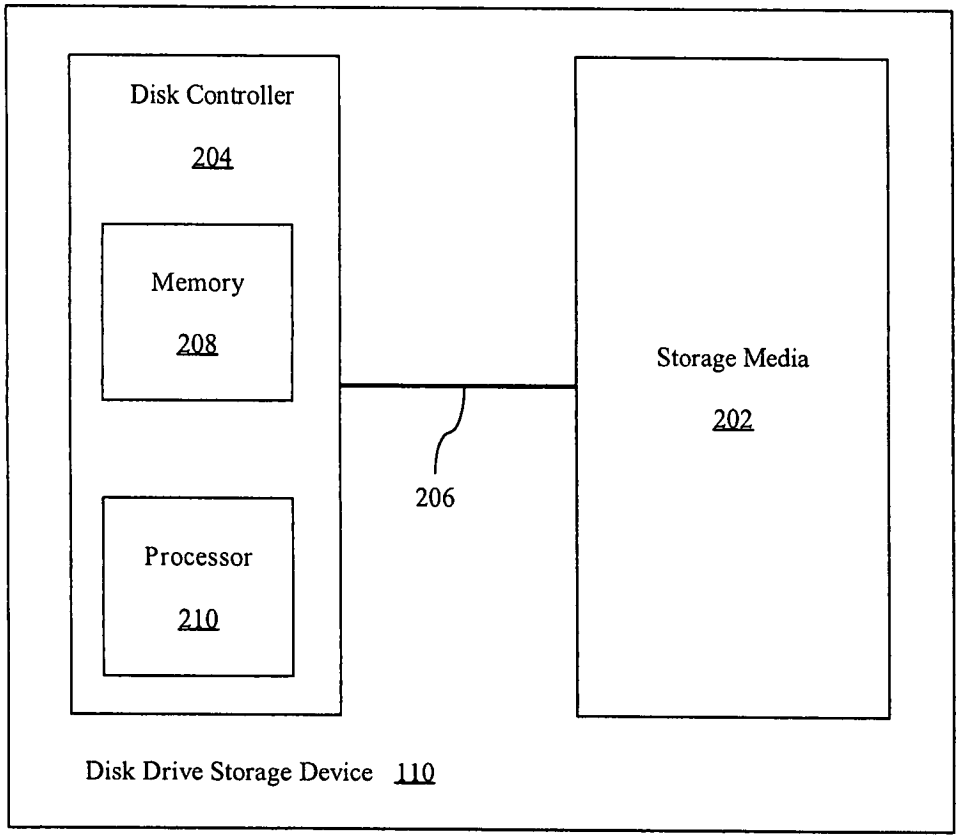
Disk Controller
204
Memory
208
Processor
210
206
Storage Media
202
Disk Drive Storage Device 110

FIG. 2

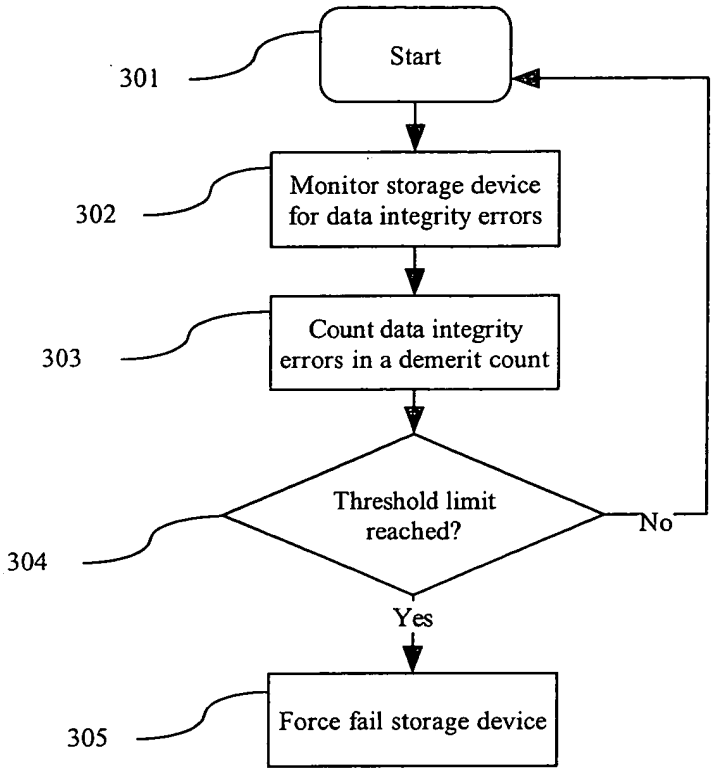
Start
301
Monitor storage device for data integrity errors
302
Count data integrity errors in a demerit count
303
Threshold limit reached?
304
No
Yes
Force fail storage device
305

FIG. 3

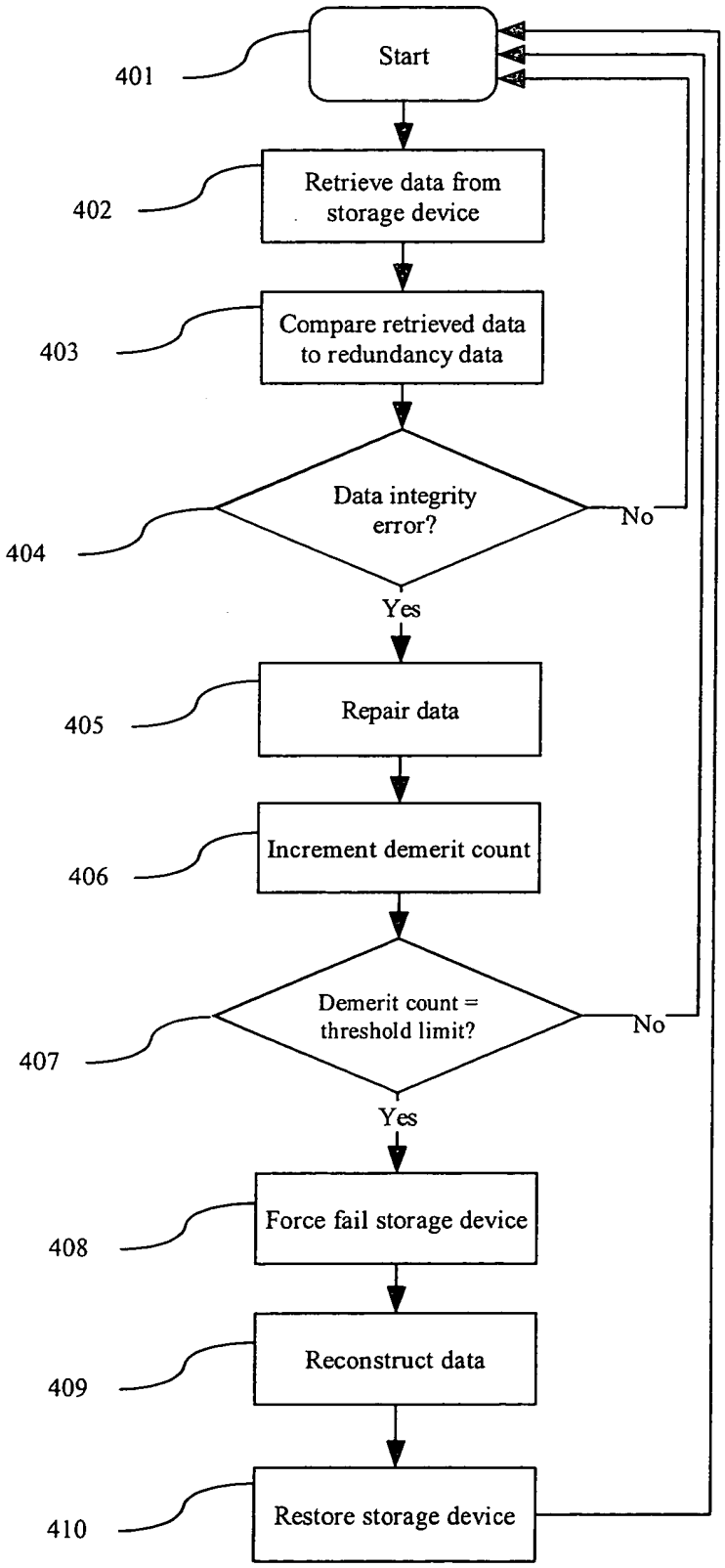
Start
401
Retrieve data from storage device
402
Compare retrieved data to redundancy data
403
Data integrity error?
404
No
Yes
Repair data
405
Increment demerit count
406
Demerit count = threshold limit?
407
No
Yes
Force fail storage device
408
Reconstruct data
409
Restore storage device
410

FIG. 4

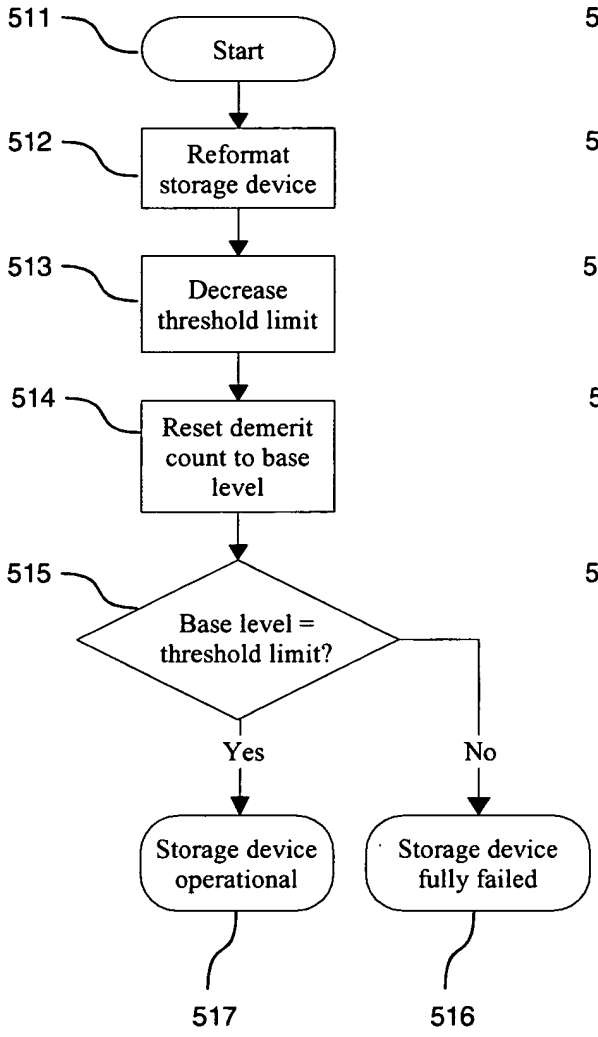
511
Start
512
Reformat storage device
513
Decrease threshold limit
514
Reset demerit count to base level
515
Base level = threshold limit?
Yes
No
Storage device operational
Storage device fully failed
517
516

FIG.5a

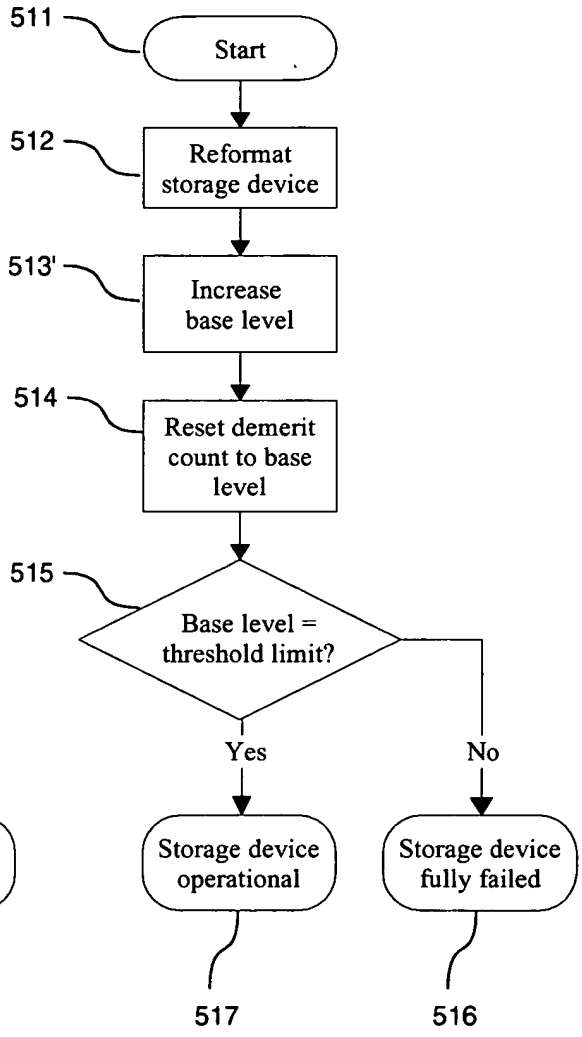
511
Start
512
Reformat storage device
513'
Increase base level
514
Reset demerit count to base level
515
Base level = threshold limit?
Yes
No
Storage device operational
Storage device fully failed
517
516

FIG.5b

Drive #	*Demerit Count*	*Threshold Limit*	*Base Level*
1	3	10	0
2	2	10	0
3	0	10	0
4	8	8	0
5	4	10	0

FIG. 6a

Drive #	*Demerit Count*	*Threshold Limit*	*Base Level*
1	3	10	0
2	2	10	0
3	0	10	0
4	8	10	2
5	4	10	0

FIG. 6b